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ABSTRACT

A study was conducted at North Shore Community College (NSCC) to determine whether there was a particular score on the General Education Development (GED) Writing Skills Test that would predict a passing score for GED recipients on the College Level Examination Program (CLEP) General English Composition Examination. A total of 73 GED recipients participated in the study. Each had received a standard score of 50 or above on the GED Writing Skills Test, received a total score of 225 or above on the entire GED battery, completed the GED tests at NSCC, had enrolled or planned to enroll at NSCC, and had been interested in receiving credit for English Composition I as a first- or second-semester student. Study findings included the following: (1) 41% of the study sample passed the CLEP General English Composition Examination with a score of 421 or above; (2) a GED recipient had a 63% chance of earning the score of 421 provided he/she had a total GED score of at least 261 and individual test scores of 51 in writing, 54 in social studies, 51 in science, 50 in literature and arts and 46 in mathematics; and (3) using Pearson's Linear Correlation analysis no statistically valid predictability existed between a particular profile of scores achieved on individual tests nor the total score and the passing CLEP score. The study report includes a summary of the research process used, the survey instrument administered to GED recipients who participated, and participant GED and CLAP scores. (AC)

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PREDICTABILITY RESEARCH STUDY BETWEEN
GENERAL EDUCATIONAL DEVELOPMENT
WRITING SKILLS TEST AND
COLLEGE LEVEL EXAMINATION PROGRAM
GENERAL ENGLISH COMPOSITION

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JC 940 084

PREDICTABILITY RESEARCH STUDY BETWEEN GENERAL
EDUCATIONAL DEVELOPMENT WRITING SKILLS TEST AND COLLEGE
LEVEL EXAMINATION PROGRAM GENERAL ENGLISH COMPOSITION

ABSTRACT

Results of a recent study indicate that there are no particular General Educational Development (GED) recipient Test scores which can be used to predict that a GED recipient will successfully pass the College Level Examination Program (CLEP) General English Composition Examination. The study was completed at North Shore Community College located north of Boston, Massachusetts. Seventy-three GED recipients who had taken their GED tests at North Shore Community College and who had passed the battery of GED tests with a total score of 225 OR ABOVE with the Writing Skills Test at 50 or above participated. Forty-one percent or 30 GED recipients passed the CLEP General English Composition Examination WITH a score of 421 or above (421 is the cut-off score for passing recommended by the American Council on Education and North Shore Community College faculty who evaluated this examination). The data available indicates that a GED recipient has a 63% chance of earning the score of 421 on the CLEP General English Composition examination provided he/she has a total GED score inclusive of 261 and individual scores inclusive of each of the following scores: Writing, 51; Social Studies, 54; Science, 51; Literature and Arts, 50; and Mathematics, 46.

Using Pearson's Linear Correlation analysis no statistically valid predictability existed between a particular profile of scores achieved on individual tests nor the total score and the passing CLEP score. The fact that eighteen of the GED recipients who did not pass the CLEP exam had earned strong GED scores warranted carrying out secondary studies of age, gender, last grade completed, geographical location where the last English Course was taken and whether or not students prepared for the GED tests. Analysis of all studies resulted in minimal correlation and, thus, no predictability. While the study sample was small, it was felt that since GED scores and characteristic profiles showed no predictability, all GED recipients should be considered potential CLEP candidates. The study report includes a summary of the research process used and analysis; a copy of the survey administered to GED recipients who participated and the variables; and participant GED and CLEP scores.

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PREDICTABILITY RESEARCH STUDY BETWEEN GENERAL
EDUCATIONAL DEVELOPMENT WRITING SKILLS TEST AND COLLEGE
LEVEL EXAMINATION PROGRAM GENERAL ENGLISH COMPOSITION

The purpose of this study was to determine the viability of General Educational Development (GED) recipients who achieved a particular minimum score on the GED Writing Skills Test and achieving the NSCC/ACE "passing" cut-off score on the College Level Examination Program (CLEP) General English Composition Examination.

The study was conducted by North Shore Community College (NSCC) in collaboration with The College Board, the Educational Testing Service and the American Council on Education. The College Board donated the CLEP examinations; NSCC provided administrative services for both GED and CLEP testing as well as analysis of data; scoring was provided by the Educational Testing Service. The American Council on Education and the Massachusetts Department of Education agreed to publicize results.

A total of 73 GED recipients participated in the study. They were invited to take the CLEP General English examination at no cost based on the following criteria:

1. Received a standard score of 50 or above on the GED Writing Skills Test (Test #1) administered after November 1, 1988.
2. Received a total score of 225 or above on the entire GED Battery.
3. Completed the GED Tests at North Shore Community College.
4. Had enrolled or planned to enroll at NSCC.
5. Had taken no duplicate college English course at NSCC or at a transfer institution.
6. Had been interested in receiving credit for English Composition I as first/second semester student.

Overview of Process

During the GED testing administration briefing, an announcement was made regarding the study. Recipients who qualified to participate received an invitation to take the CLEP test. The CLEP test was administered in small groups from December 1991 to June 1992 by Nancy L. Murphy and Mary Kelleher, Test Supervisors who had previously administered the GED Tests to all applicants. All test takers completed a survey prior to testing. Statistical analysis was completed using StatPac produced by Walonick Associates, Inc. (an adaptation of the Statistical Package for

the Social Sciences developed by SPSS, Inc.). This work was completed by Sandra Stalker, Director of Education Technology. Further statistical analysis was completed by Robert Campbell, Professor of Mathematics and Physics. A copy of the letter inviting recipients to test, the survey and variable listing can be found in Appendix A.

Thirty GED recipients or forty-one percent of the seventy-three study participants earned a CLEP score of 421 or above - the NSCC and American Council on Education recommended passing score. Each of the thirty had a GED total score of 261 or above and scores on individual tests as follows:

Writing Skills	Social Studies	Science	Literature & Arts	Mathematics
51 or above	54 or above	51 or above	50 or above	46 or above

Forty-three GED recipients did not pass. Eighteen of the forty-three had attained the same GED scores. Nevertheless, the data available does allow us to state that a GED recipient has a 63% chance of earning a score of 421 on the General English Composition Examination if he/she earns a total GED score inclusive of 261 and individual scores inclusive of each of the following scores: Writing, 51; Social Studies, 54; Science, 51; Literature and Arts, 50; Mathematics, 46. The percentage was derived from the fact that 48 had the GED scores and 30 passed ($30/48 = 63\%$). The study participants raw CLEP and GED scores, the statistical analysis of GED scores and statistical analysis of CLEP scores can be found in Appendix B.)

Using Pearson's Linear Correlation analysis, we found that no statistically valid predictability exists. Predictability factors analyzed included the Writing Skills Test, the total GED score and all individual scores. (The approximations can be found in Appendix C).

Secondary studies were then carried out on age and gender; last (K-12) grade completed; the geographical location where school was completed; and preparation for the GED tests. Finally, the profile of the group was compared to the CLEP candidates who took the General English Composition Examinations in 1991 and 1992 considering the mean, standard deviation and percent of passing. CLEP Institutional reports used included Designated Institution Summary Reports for North Shore Community College, State Summary Reports of Massachusetts Institutions, and National Summary Reports for All Candidates. (CLEP statistical reports are available on request.)

RESULTS

The Pearson's Linear Correlation Coefficient at Writing Skills Test score of 51 was approximately 0.7 which is not high enough to indicate a strong relationship.

The same correlation showed a GED total score of 261 was approximately 0.72. As to all other individual scores correlation approximations: Social Studies at a score of 54 or higher, $r=0.7$; Science at 51 or higher, $r=0.71$; Literature & arts, 50 or higher, $r=0.685$; Mathematics, 46 or higher, $r=0.71$. Again, no strong relationships existed.

Secondary studies of age, gender, last grade completed, geographical location where the last English course was completed and preparation for tests also proved to have minimal correlation when compared to CLEP score results. (The data for the age and gender is included in Appendix C. The last grade completed, geographical location and preparation analysis were simple calculations and are reported herein.)

As to age and gender, the categories used were 18 and under, 19 - 21, 22 - 25, 26 and over, no response. There was no greater predictability of passing based on any particular age nor gender. Considering age and gender together, the females 18 and under achieved the highest passing rate at 57% (8/14).

Considering age groups separately, the 22-25 group performed better with a 57% passing (4/7). The 18 and under age group attained a 48% passing rate (10/21); the 26 and over group, 37%; and the 19-21 group, 27%.

Considering gender separately, there were 47 females and 26 males in the total group. 47% or 21 of the females passed and 35% or 9 of the males.

The last grade completed categories entered by GED recipients were 12th grade, 11th, 10th, 9th, 8th, 7th, unknown. While no statistically valid predictability existed, the profile itself tells us that an early drop-out grade most likely does not inhibit the GED recipient from passing the CLEP examination. Of those completing the 11th grade, 50% passed (10/20); the 10th, 62% (13/21); the 9th, 44% (4/9); the 8th, 75% (3/4). The six students remaining did not pass: a 12th grader who was a student from another country; a seventh grader; and four who did not identify the last grade completed on the survey.

Geographical areas where the last formal English course was completed were divided into two categories: Massachusetts and out-of-state. Again, there was no predictability. Seventy-nine percent of the GED recipients had completed their last course at a Massachusetts school (58/73) and 21% out-of-state (15/73). Of the 58 Massachusetts students, 41% passed (24); of the 15 out-of-state, 40% passed (6).

As to whether or not the individual prepared for the GED tests, formally or informally, no valid predictability existed. Of those who passed the CLEP, 47% of the 30 indicated they had prepared (14 students). [Of those who did not pass the CLEP, 79% stated they had prepared (34 students)].

Thus far, we can see that selected variables are not viable predictors. The total field of variables available is extensive and is available in Appendix A, but it hardly makes sense to review any others.

Finally, we compared the profile of the GED recipients to all CLEP candidates who took the General English Composition Examination and designated NSCC as the recipient institution. We used the College-Level Examination Program's Designated Institution Reports for the same two years. The mean for the GED participation group was slightly lower at 414.75 for 73 scores compared to all NSCC candidates 1990-91 mean at 433.3 for 64 scores and all NSCC candidates mean 91-92 at 431.3 for 37 NSCC scores. The standard deviation for GED recipients was 76.0176 showed scores clustered closer together when compared to the NSCC candidate groups 90-91 at 80.6, and 91-92 at 92.0. This did not warrant further analysis.

Most important to take into consideration was the fact that the CLEP General English Examination passing rate was significantly lower for GED recipients for both years. GED recipients passed the CLEP General English Examination at a passing rate of 41% (30/73). In 1991, the passing rate was 52% for all other students at NSCC (33/64); for Massachusetts, the passing rate was 66% (114/173); and nationally, it was 75% (3643/4856). In 1992, the passing rate for NSCC was 51% (19/37); for Massachusetts it was 67% (85/127); and nationally, 74% (4069/5479). The lower rate of passing for GED recipients certainly needs to be considered in advising students to prepare for the examination.

We wondered about factors such as student motivation, and test administration consistency. Tests were arranged in individual/small group appointments. Students already knew the testing supervisors and were familiar with the testing environment. Test anxiety was reduced further because they were aware that not achieving a passing score simply meant that they would be advised to enroll in a college English course.

When students responded to the invitation to take the CLEP after their GED Testing Session and to the letter, they expressed excitement about the opportunity. Since they were aware the test would determine either that they could earn credit for Composition I based on current knowledge or that this would help determine that they needed work in this area. (No official record would indicate that they did not pass the test.) Perhaps the irony of the lack of apparent anxiety was that students probably did not prepare when they should have.

CONCLUSIONS

Conducting the research was a positive experience for all of us. More GED recipients took the CLEP English examination immediately after GED testing than previously and many enrolled at North Shore Community College because of the positive experience they had with testing. Moreover, 30 students passed the tests and earned credit for English Composition I.

However, the bottom line is that there is no predictability for this particular CLEP Test based on GED scores nor GED recipient profile. Considering the fact that the author's previous study on GED recipient success showed no correlation between GED scores and subsequent grade point average at NSCC, it appears that GED test scores are not a valid criteria to use to differentiate between students who will and will not succeed in either passing College Level Examinations nor college classes. [Previous study title: A Mandate for the 90's: Research, Success of General Educational Development (GED) Recipients in Higher Education; Eric Document #ED316-303 JC900 173]

At this point, having determined no predictability, we can safely say, as we have in the past, all GED recipients should make an appointment to discuss CLEP examination(s) and college plans. During that appointment they will be given a sample examination and can decide whether or not to prepare and apply for credit via the examination process.

The important message to those who work with GED recipients is not to make any judgmental statements pertaining to success based on GED scores but rather to encourage all students to investigate taking CLEP examinations.

APPENDIX A

1. LETTER
2. SURVEY
3. LIST OF VARIABLES

NORTH SHORE COMMUNITY COLLEGE

6b

1 Ferncroft Road, Danvers, Massachusetts 01923
(508) 762-4000

LETTER

Dear

You have been selected to participate in a special College-Level Testing Session which will provide you with the opportunity to earn three college credits in English Composition at North Shore Community College at no charge. The College Level Examination Program English Composition examination takes 90 minutes and is multiple-choice (no essay will be required). If you have not already taken an English Composition course, this will save you up to a total of \$210.00, the cost of tuition. The cost of the examination would be \$48.00.

You were selected because you achieved a score of 50 or over on the GED English Writing Skills Test; and your tests were completed and passed after November, 1988.

North Shore Community College, the College Board, and Educational Testing Service are conducting this study to determine if there is a relationship between performance on the GED Writing Skills Test and passing the CLEP General English Composition Examination. Results will be published by the American Council on Education.

The examination will be administered by appointment at the Hardie Building in Beverly on Mondays and Fridays at 10:00 a.m. and 1:30 p.m. or by special appointment during the months of October and November, 1990.

If you have not yet taken a college English Composition course and are interested in taking advantage of this chance to earn college credits, please call me to ask further questions and to schedule your appointment. I can be reached at 508-762-4000 04 617-593-6722, Ext. 5428 between 9:00 a.m. to 3:00 p.m.

Sincerely,

Anita P. Turner, GED and CLEP Chief Examiner
and Director of the Center for Alternative Studies

**THE COST OF THIS COLLABORATIVE STUDY IS BEING UNDERWRITTEN BY THE
COLLEGE BOARD, EDUCATIONAL TESTING SERVICES AND NORTH SHORE
COMMUNITY COLLEGE.**

Lynn Campus 300 Broad Street, Lynn (617) 593-6722 • Beverly Campus 112 Sohier Road, Beverly (508) 762-4000

A public regional community college • Commonwealth of Massachusetts

SURVEY

FOR OFFICE USE ONLY
CODE

_____CENTER FOR ALTERNATIVE STUDIES
NORTH SHORE COMMUNITY COLLEGE
GED/CLEP PREDICTABILITY STUDY
SURVEYSTUDENT INFORMATION

DATE _____

1. NAME _____ 2. S.S.# _____
3. STREET ADDRESS _____
4. CITY/TOWN _____ STATE/ZIP _____
5. HOME PHONE _____ 6. WORK PHONE _____
7. MALE ☐ / FEMALE ☐ /
8. ETHNIC: WHITE ☐ / BLACK ☐ / HISPANIC ☐ / ASIAN ☐ /
AMERICAN INDIAN ☐ / OTHER (PLEASE IDENTIFY) _____
9. AGE TAKING GED _____ 10. AGE TAKING CLEP _____
11. DATE OF BIRTH _____

FORMAL EDUCATION

12. GRADE LAST ENGLISH COURSE COMPLETED _____
13. NAME OF ELEMENTARY/HIGH SCHOOL (WHERE COMPLETED) _____
14. CITY _____ 15. STATE _____
16. HOW MANY YEARS SINCE LEFT SCHOOL _____

PREPARATION AND TESTING

17. FORMAL GED PREPARATION: YES ☐ / NO ☐ /
18. IF YES, NAME OF PROGRAM _____
19. INFORMAL PREPARATION YES ☐ / NO ☐ /
20. If yes, describe the preparation. (For example, I used a study guide to prepare for my GED Tests.)

21. DID YOU TAKE THE GED WRITING SKILLS TEST MORE THAN ONCE? YES ☐ / NO ☐ /
22. IF YES, HOW MANY TIMES? _____

23. PREPARATION FOR CLEP: YES ☐ / NO ☐ /
24. IF YES, DESCRIBE _____

COLLEGE PLANS

NAME THE SEMESTER/SUMMER SESSION YOU PLAN TO TAKE AN ENGLISH COURSE AT NORTH SHORE COMMUNITY COLLEGE.

25. FALL SEMESTER (DATE) _____ 26. SPRING SEMESTER (DATE) _____
27. SUMMER SESSION (DATE) _____
28. COMMENTS (FOR EXAMPLE, NOTE HOW YOU FEEL ABOUT TAKING THIS TEST AND HAVING THIS OPPORTUNITY)

FOR OFFICE USE ONLY**GED SCORES:**

CODE _____

29. TOTAL _____ DATE _____
30. TEST #1. ENGLISH
(WRITING SKILLS) _____ DATE _____

OTHER SCORES:

31. TEST #2: SOCIAL STUDIES _____ DATE _____
32. TEST #3: SCIENCE _____ DATE _____
33. TEST #4: INTERPRETING
LITERATURE & ARTS _____ DATE _____
34. TEST #4: MATHEMATICS _____ DATE _____

CLEP SCORES

35. CLEP SCORE: _____ 36. ELIGIBLE TO EARN CREDIT: YES ☐ / NO ☐ /
(CUT-OFF SCORE AT NSCC: 420)

FIRST COLLEGE ENGLISH COURSE

37. TITLE _____ 38. INSTRUCTOR _____
39. LETTER GRADE _____

LIST OF VARIABLES

CENTER FOR ALTERNATIVE STUDIES
NORTH SHORE COMMUNITY COLLEGE
GED/CLEP PREDICTABILITY VARIABLES

<u>VARIABLE #</u>	<u>ITEM # ON SURVEY</u>	<u>VARIABLE DESCRIPTOR</u>
1.	2.	Social Security Number.
2.	7.	Sex - M/F.
3.	8.	Ethnic Background.
4.	9.	Age at taking GED Test.
5.	10.	Age at taking CLEP Test (current age).
6.	12.	Grade last English course completed (in formal school).
7.	13.	Location of school by city.
8.	15.	Location of school by state.
9.	16.	How many years since left school.
10.	17.	Whether or not they participated in formal GED preparation.
11.	18.	If yes, the name of the program.
12.	19.	Whether or not they prepared informally for GED.
13.	21.	Whether or not they took the GED Writing Skills more than once.
14.	22.	If yes, number of times took Writing Skills.
15.	23.	Whether or not they prepared for CLEP.
16.	29.	GED Total Score.
17.	30.	Score on GED Test #1, Writing Skills.
18.	31.	Score on GED Test #2, Social Science.

LIST OF VARIABLES page 2

19.	32.	Score on GED Test #3, Science.
20.	33.	Score on GED Test #4, Interpreting Literature & Arts
21.	34.	Score on GED Test #5, Mathematics.
22.	35.	CLEP score.
23.	36.	Whether or not they are eligible for credit at NSCC.
24.	39.	Letter grade in 1st College English class at NSCC.

APPENDIX B

1. STUDY PARTICIPANTS CLEP AND GED SCORES
2. STATISTICAL ANALYSIS OF CLEP SCORES
3. STATISTICAL ANALYSIS OF GED SCORES

STUDY PARTICIPANTS CLEP AND GED SCORES

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Rankorder by CLEP of GED Total and Separate Test Scores

CLEP Score	GED Score	Writing	Soc. Stud.	Science	Lit & Arts	Math
600	323	66	64	68	67	58
590	325	65	67	62	76	55
571	322	64	75	62	63	58
571	316	58	64	63	74	57
537	312	60	68	66	66	52
537	323	68	66	65	74	50
522	328	70	60	66	68	64
518	296	58	60	59	68	51
518	289	62	60	58	59	50
518	320	68	63	56	76	57
508	362	69	67	79	70	77
508	313	63	63	60	76	51
503	296	58	68	53	63	54
493	312	63	65	62	70	52
489	288	58	55	60	65	50
469	297	64	64	54	62	53
469	286	57	59	55	66	49
464	294	57	61	56	63	57
464	274	52	65	57	52	48
464	296	54	57	60	70	55
460	296	51	62	63	68	52
455	299	52	68	58	59	62
455	280	57	60	53	58	52
445	267	55	54	53	56	49
435	291	57	60	60	55	59
435	287	57	66	57	56	51
431	261	55	57	51	50	48
431	292	55	63	60	68	46
421	305	69	69	55	59	53
421	291	58	55	61	59	58
416	323	69	68	62	62	62
411	268	58	58	55	59	38
411	289	54	58	53	74	50
406	249	52	48	46	50	53
402	305	53	61	59	70	62
402	258	53	56	52	53	44
397	283	50	54	53	70	56
397	272	54	54	52	64	48
392	266	51	52	58	60	45
392	322	60	68	69	68	57
392	291	53	63	62	53	60
392	304	62	61	64	59	58
392	292	58	60	57	62	55
387	271	53	56	58	59	45
382	303	50	63	62	65	63
382	296	50	60	66	59	61
382	303	50	63	62	65	63
377	288	51	69	62	50	56
377	285	53	57	59	65	51
373	266	52	61	55	53	45
373	270	54	60	54	54	48

STUDY PARTICIPANTS CLEP AND GED SCORES page 2

Rankorder by CLEP of GED Total and Separate Test Scores

CLEP Score	GED Score	Writing	Soc. Stud.	Science	Lit & Arts	Math
368	281	51	62	61	59	48
363	276	53	54	51	66	52
358	261	51	56	47	60	47
358	258	52	57	49	54	46
358	296	58	63	60	68	47
349	260	54	52	52	51	51
349	308	53	61	66	70	58
349	298	50	68	60	63	57
344	269	57	56	51	56	49
339	254	51	50	49	59	45
334	248	51	52	50	50	45
334	266	53	58	45	64	46
324	280	52	59	56	57	56
324	264	51	58	57	53	45
324	249	54	51	50	52	42
324	265	52	56	53	57	47
324	239	52	50	46	52	39
320	274	56	58	54	54	52
320	252	55	52	45	49	51
310	267	53	53	53	55	53
257	241	52	49	44	49	47

STATISTICAL ANALYSIS OF CLEP SCORES

Statistical Analysis of CLEP Scores

CLEP Score

Minimum	=	257
Maximum	=	600
Range	=	343
Sum	=	30277
Mean	=	414.753
Median	=	397
Modes (Bimodal)	=	324 & 392
Variance	=	5699.391
Standard deviation	=	75.494
Standard error of the mean	=	8.897
95 Percent confidence interval around the mean	=	397.315 - 432.192
99 Percent confidence interval around the mean	=	391.843 - 437.663
Variance (unbiased)	=	5778.549
Standard deviation (unbiased)	=	76.017
Skewness	=	0.513
Kurtosis	=	2.605
Kolmogorov-Smirnov statistic for normality	=	0.875

Valid cases = 73
 Missing cases = 0
 Response percent = 100.0 %

STATISTICAL ANALYSIS OF GED SCORES

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Statistical Analysis of GED Scores

GED Score

Minimum = 228

Maximum = 362

Range = 134

Sum = 20885

Mean = 286.096

Median = 288

Mode = 296

Variance = 615.566

Standard deviation = 24.811

Standard error of the mean = 2.924

95 Percent confidence interval around the mean = 280.365 - 291.827

99 Percent confidence interval around the mean = 278.567 - 293.625

Variance (unbiased) = 624.116

Standard deviation (unbiased) = 24.982

Skewness = 0.178

Kurtosis = 3.046

Kolmogorov-Smirnov statistic for normality = 0.496

Valid cases = 73

Missing cases = 0

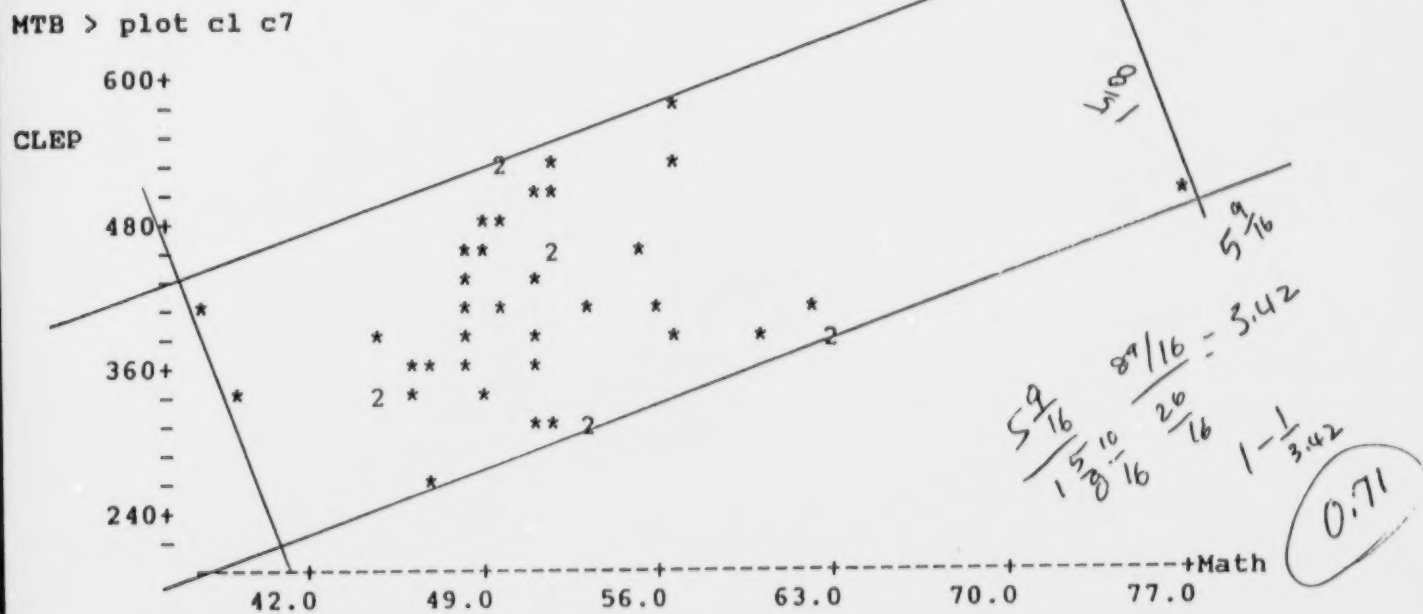
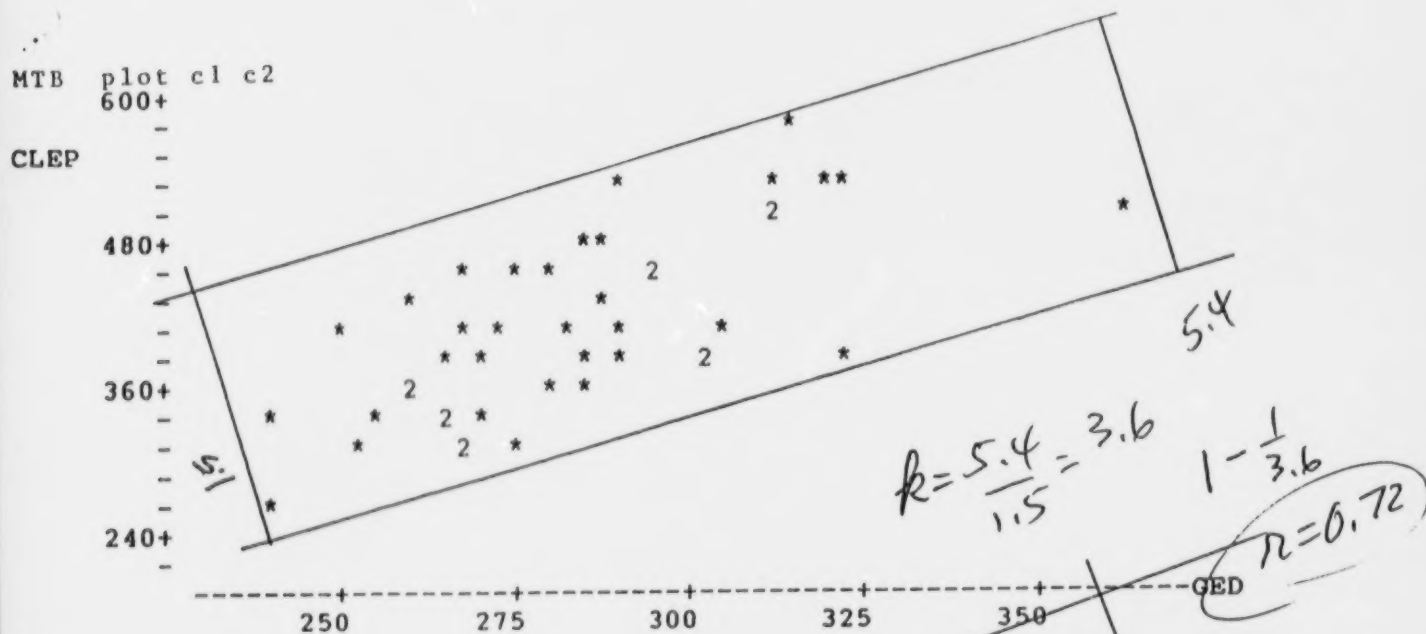
Response percent = 100.0 %

APPENDIX C

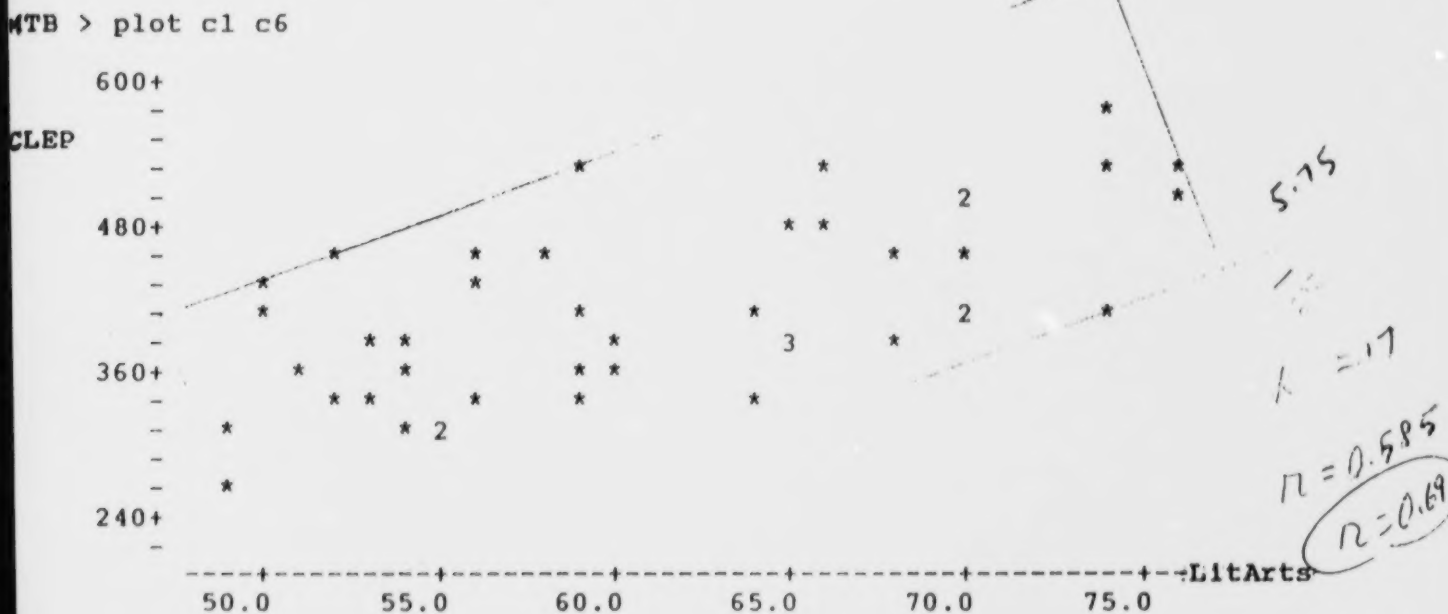
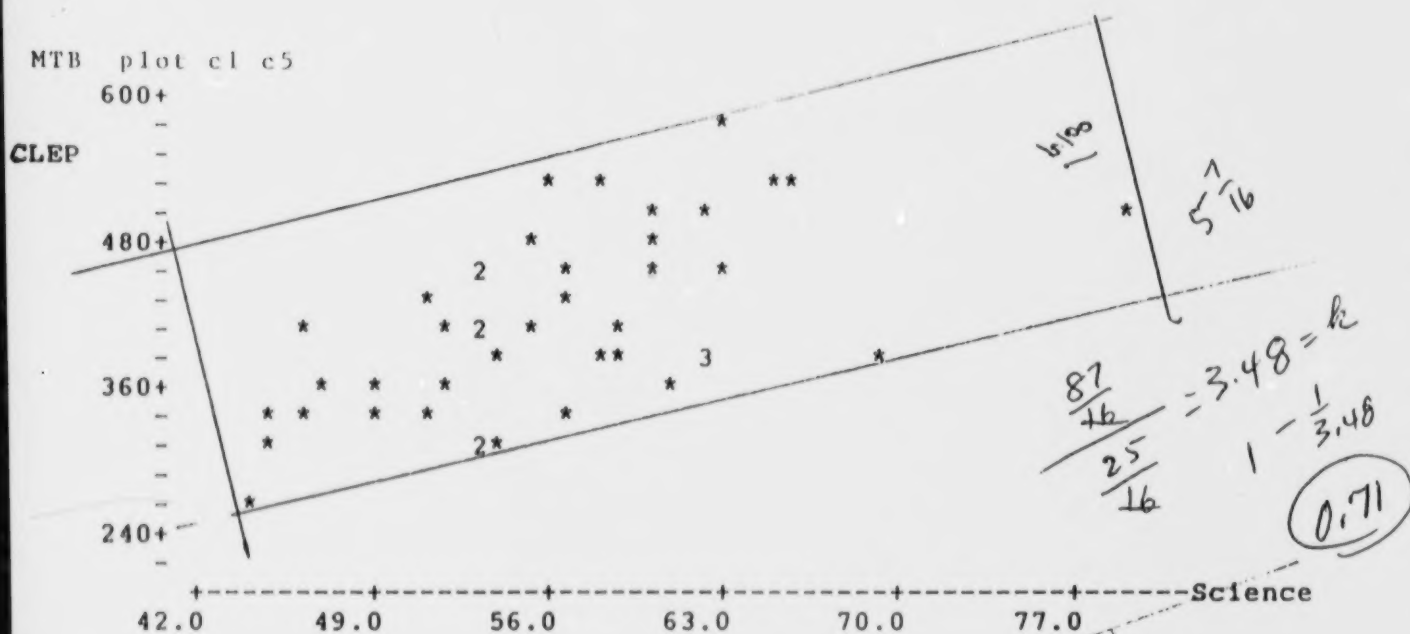
APPROXIMATIONS OF PEARSON
LINEAR CORRELATION COEFFICIENTS

1. CLEP/TOTAL GED SCORE
CLEP/GED MATHEMATICS (TEST 5)
2. CLEP/GED SCIENCE (TEST 3)
CLEP/GED LITERATURE AND THE ARTS (TEST 4)
3. CLEP/GED WRITING SKILLS (TEST 1)
CLEP/GED SOCIAL STUDIES (TEST 2)
4. AGE AND GENDER OF PARTICIPANTS ACHIEVING
421 OR ABOVE

APPROXIMATIONS OF PEARSON LINEAR CORRELATION COEFFICIENTS
CLEP/TOTAL GED SCORE
CLEP/GED MATHEMATICS (TEST 5)



APPROXIMATIONS OF PEARSON LINEAR CORRELATION COEFFICIENTS
 CLEP/GED SCIENCE (TEST 3)
 CLEP/GED LITERATURE AND THE ARTS (TEST 4)

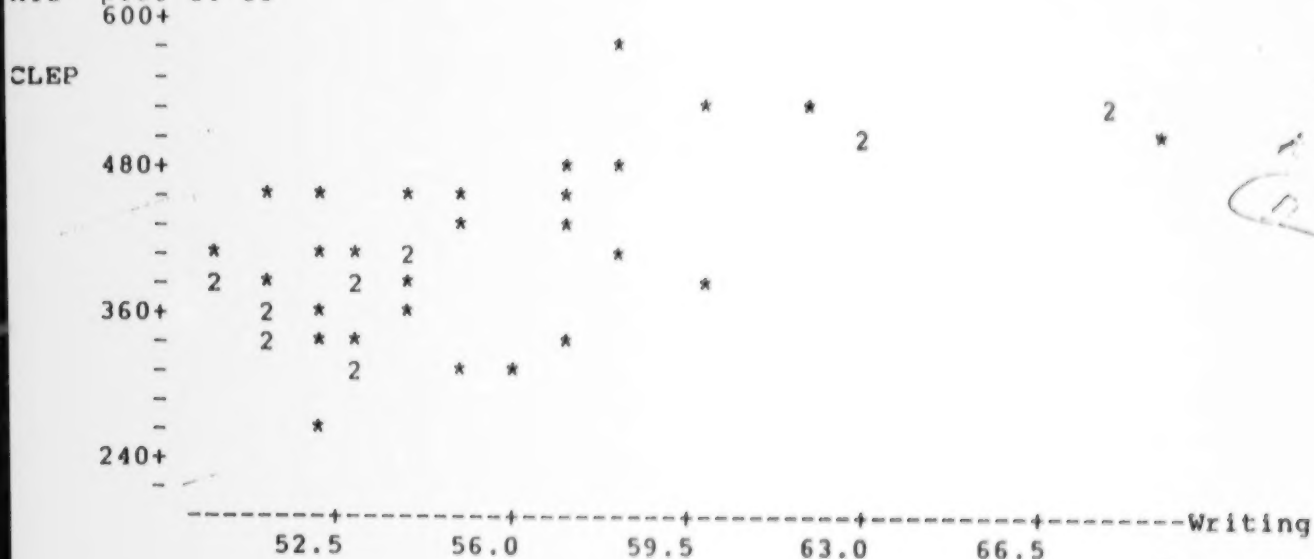


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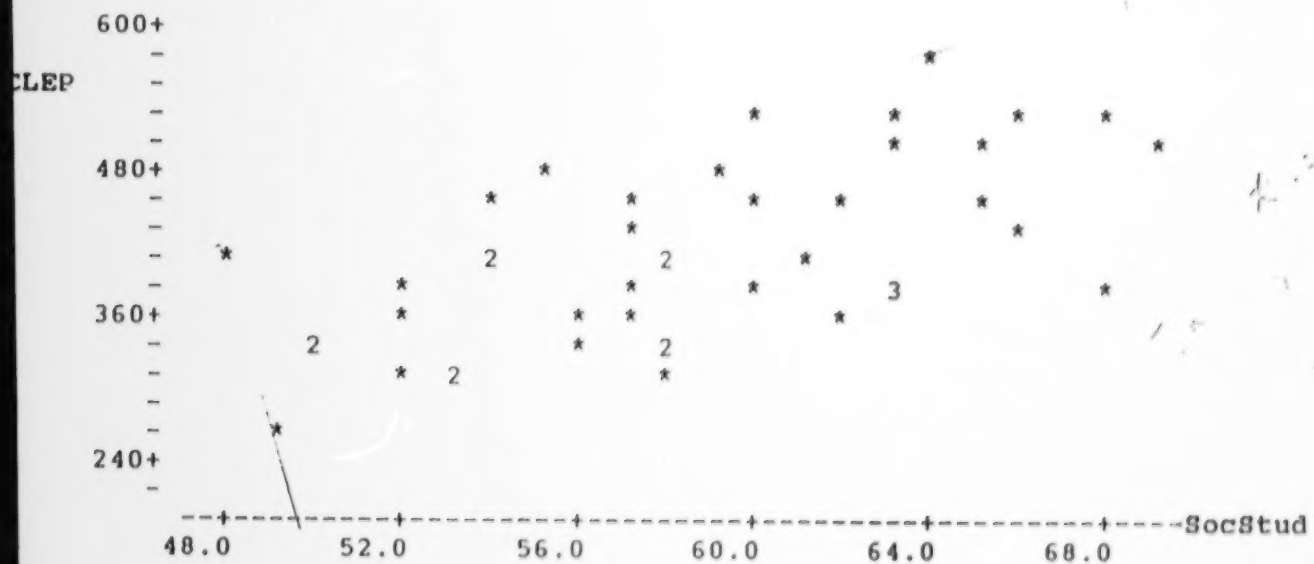
APPROXIMATIONS OF PEARSON LINEAR CORRELATION COEFFICIENTS
 CLEP/GED WRITING SKILLS (TEST 1)
 CLEP/GED SOCIAL STUDIES (TEST 2)

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MTB plot c1 c3



MTB > plot c1 c4



$r = 1 - \frac{1}{n}$

$$-1 \leq r \leq 1$$

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